UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 30508

CSAH NO. 10

OVER THE

RUM RIVER

DISTRICT 3 - ISANTI COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 77)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 30508, Piers 1 and 2, were found to be in very good and sound condition, similar to the findings of the last inspection, with no defects of structural significance. The channel bottom around both piers appeared stable with no significant scour and no exposed footings, and with an overall configuration essentially the same as was found during the previous inspection.

INSPECTION FINDINGS:

(A) The concrete surfaces below water were in very good and sound condition; however, they were slightly rough due to light scaling at the waterline.

(B) A minor accumulation of 2- to 4-inch-diameter timber debris was observed on the channel bottom at the upstream nose of Pier 1.

(C) A 3-foot-radius, 1-foot-deep scour depression was observed at the upstream nose of Pier 2.

RECOMMENDATIONS:

(A) Reinspect all substructure units underwater within the normal maximum (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 30508

Feature Crossed: The Rum River

Feature Carried: CSAH No. 10

Location: District 1 - Isanti County

Bridge Description: The bridge superstructure consists of three continuous, multiple steel beam spans supported by two concrete piers and two concrete abutments. Both the piers and abutments are founded on timber piles. The piers are numbered 1 and 2 starting from the east end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: September 25, 2002

Weather Conditions: Overcast, "45EF

Underwater Visibility: "1 Foot

Waterway Velocity: "1 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: Each pier consists of a rectangular shaft with rounded ends which rests upon a rectangular footing supported on timber piles.

Maximum Water Depth at Substructure Inspected: Approximately 7.0 Feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the upstream end of Pier 2.

Water Surface: The waterline was approximately 22.2 feet below reference.
Water Elevation = 892.7.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 8

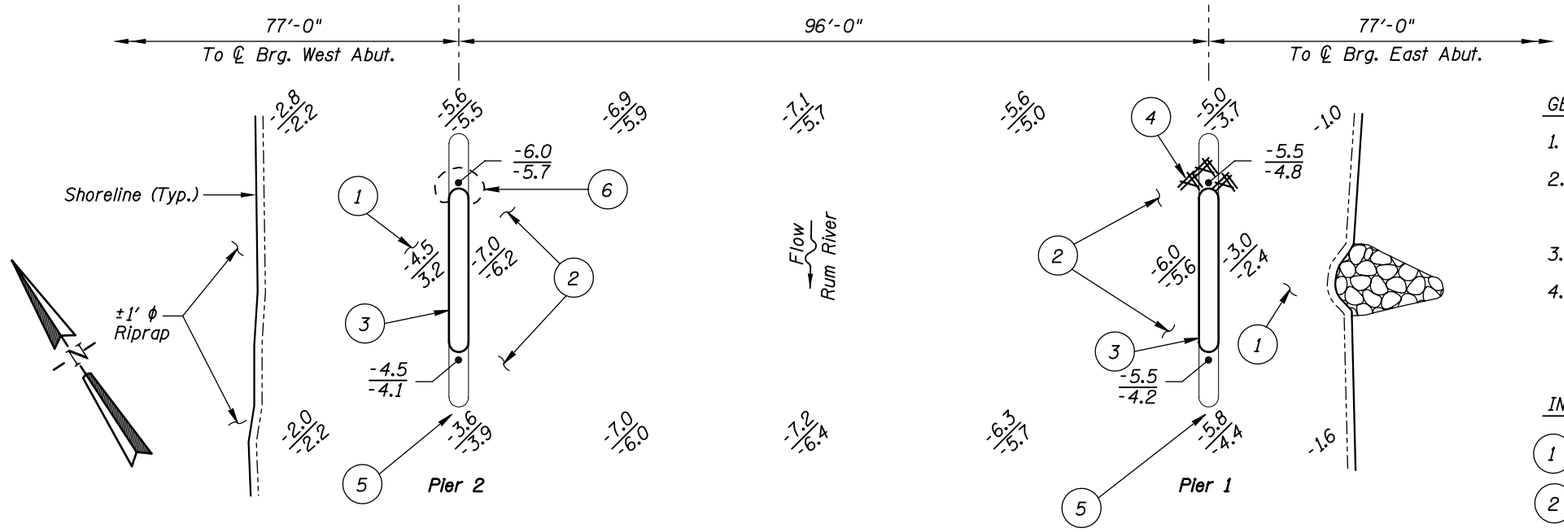
Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/08/02

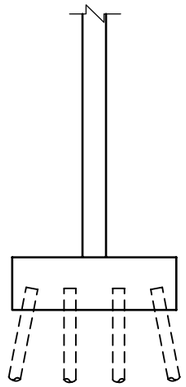
Item 113: Scour Critical Bridges: Code O/96

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____Yes ___X__No



SOUNDING PLAN



TYPICAL END VIEW OF PIERS

GENERAL NOTES:

1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on September 25, 2002, the waterline was located approximately 22.2 feet below the top of pier cap at the upstream end of Pier 2. This corresponds to a waterline elevation of 892.7 based on the previous report on August 28, 1997.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

(1) The channel bottom consisted of 8- to 12-inch-diameter riprap.

(2) The channel bottom consisted of firm sandy gravel with probe rod penetrations of 2 to 3 inches.

(3) The concrete surface was in very good and sound condition with light scaling.

(4) A minor accumulation of 2- to 3-inch-diameter timber debris was observed at the upstream nose.

(5) The channel bottom consisted of sandy infilling with probe rod penetrations of 6 inches.

(6) Minor scour depression around upstream nose with 3 foot radius and 1 foot depth.

Legend

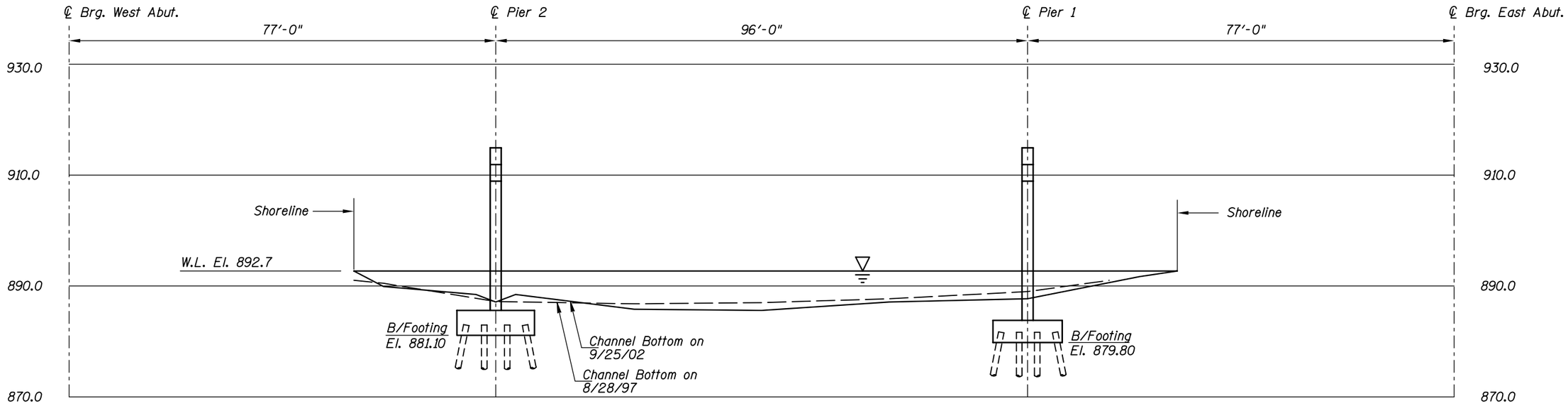
-7.0 / -6.0	Sounding Depth from Waterline (9/25/02) / Sounding Depth from Waterline (8/28/97)
	Timber Debris
	Scour Depression
	±1′ Diameter Riprap

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

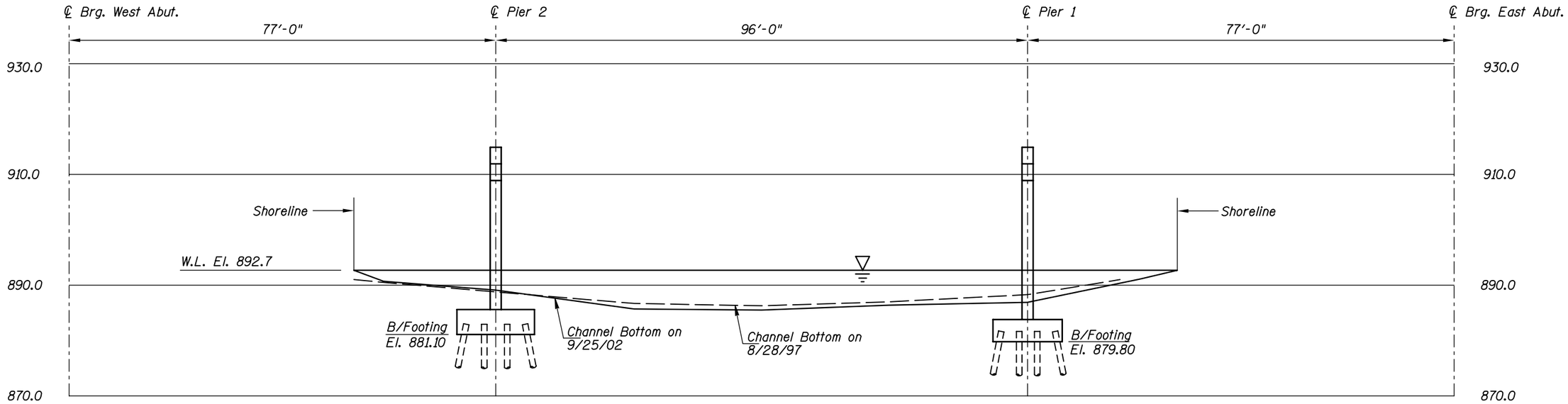
STRUCTURE NO. 30508
OVER THE RUM RIVER
DISTRICT 3, ISANTI COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120077		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
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UNDERWATER BRIDGE INSPECTION

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UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	**COLLINS ENGINEERS, INC.**	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=20'
Code: 35120077		Figure No.: 2

Photograph 1. Overall View of the Structure, Looking West.

Photograph 2. View of Pier 1, Looking East.

Photograph 3. View of Pier 2, Looking East.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: September 25, 2002

ON-SITE TEAM LEADER: Shirley M. Walker, P.E.

BRIDGE NO: 30508 WEATHER: Overcast, "45EF

WATERWAY CROSSED: The Rum River

DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR

OTHER

PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins

EQUIPMENT: SCUBA, U/W Light, Scraper, Lead Line, Sounding Pole, Probe Rod, Camera

TIME IN WATER: 8:45 A.M.

TIME OUT OF WATER: 9:15 A M.

WATERWAY DATA: VELOCITY "1 f.p.s.

VISIBILITY "1 Foot

DEPTH 7.0 feet maximum at Pier 2

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: Overall, the submerged concrete of Piers 1 and 2 was in very good and sound condition with no defects of structural significance. The channel bottom around both piers appeared stable and the overall configuration was comparable to the last inspection findings. A light accumulation of 2- to 4-inch-diameter timber debris was observed at the upstream nose of Pier 1. A 3-foot-radius, 1-foot-deep scour pocket has developed at the upstream nose at Pier 1 since the last inspection.

FURTHER ACTION NEEDED: _____ YES ___X___ NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 30508
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Rum River

INSPECTION DATE September 25, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	6.0’	N	8	N	9	N	8	8	N	8	7	7	8	N	N	N	N	N
	Pier 2	7.0’	N	8	N	9	N	8	7	N	9	8	7	8	N	N	N	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the submerged concrete of Piers 1 and 2 was in very good and sound condition with no defects of structural significance. The channel bottom around both piers appeared stable and the overall configuration was comparable to the last inspection findings. A light accumulation of 2- to 4-inch-diameter timber debris was observed at the upstream nose of Pier 1. A 3-foot-radius, 1-foot-deep scour pocket has developed at the upstream nose at Pier 1 since the last inspection.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.